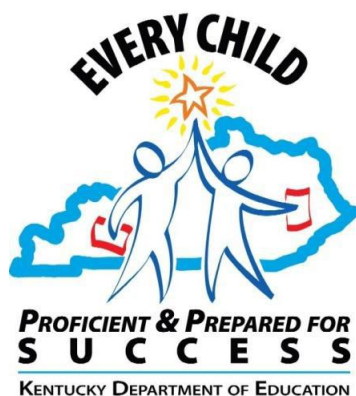


High School – Geometry

Kentucky Core Academic Standards with Targets



Grade Level/ Course: Geometry Unit 1	
Standard:	G.CO.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment based on the undefined notions of a point, line, distance along a line and distance around a circular arc.
Domain:	Congruence
Cluster:	Experiment with transformations in the plane.
Type: __X__ Knowledge ____ Reasoning ____ Performance Skill ____ Product	

Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets
Describe the undefined terms: point, line, and distance along a line in a plane.							
Define perpendicular lines, parallel lines, line segments, and angles.							
Define circle and the distance around a circular arc.							
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course : Geometry Unit 1	
Standard with code:	G.CO.2 Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch)
Domain:	Congruence
Cluster:	Experiment with transformations in the plane
Type: _____ Knowledge <u> X </u> Reasoning _____ Performance Skill _____ Product	

Knowledge Targets		Reasoning Targets				Performance Skills Targets	Product Targets
Describe the different types of transformations including translations, reflections, rotations and dilations. Describe transformations as functions that take points in the coordinate plane as inputs and give other points as outputs		Represent transformations in the plane using, e.g., transparencies and geometry software. Write functions to represent transformations. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch) From Appendix A: Build on student experience with rigid motions from earlier grades. Point out the basis of rigid motions in geometric concepts, e.g, translations move points a specific distance along a line parallel to a specified line; rotations move objects along a circular arc with a specified center through a specified angle.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): Geometry Unit 1	
Standard with code:	G.CO.3 Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.
Domain:	Congruence
Cluster:	Experiment with transformations in the plane
Type: X Knowledge Reasoning Performance Skill Product	

Knowledge Targets		Reasoning Targets		Performance Skills Targets		Product Targets	
<p>Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and/or reflections that carry it onto itself.</p> <p>From Appendix A: Build on student experience with rigid motions from earlier grades. Point out the basis of rigid motions in geometric concepts, e.g, translations move points a specific distance along a line parallel to a specified line; rotations move objects along a circular arc with a specified center through a specified angle.</p>							
Make sense of problems and persevere in solving them	Reason abstractly and quantitatively	Construct viable arguments and critique the reasoning of others	Model with mathematics	Use appropriate tools strategically	Attend to precision	Look for and make use of structure	Look for and express regularity in repeated reasoning

Grade Level/ Course: Geometry Unit 1	
Standard with code:	G.CO.4 Develop definitions of rotations, reflections and translations in terms of angles, circles, perpendicular lines, parallel lines and line segments.
Domain:	Congruence
Cluster:	Experiment with transformations in a plane
Type: _____ Knowledge ___X___ Reasoning _____ Performance Skill _____ Product	

Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets
Recall definitions of angles, circles, perpendicular and parallel lines and line segments.		<p>Develop definitions of rotations, reflections and translations in terms of angles, circles, perpendicular lines, parallel lines and line segments.</p> <p>From Appendix A: Build on student experience with rigid motions from earlier grades. Point out the basis of rigid motions in geometric concepts, e.g., translations move points a specific distance along a line parallel to a specified line; rotations move objects along a circular arc with a specified center through a specified angle.</p>					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course : Geometry Unit 1							
Standard with code:		G.CO.5 Given a geometric figure and a rotation, reflection or translation, draw the transformed figure using, e.g. graph paper, tracing paper or geometry software. Specify a sequence of transformations that will carry a given figure onto another.					
Domain:		Congruence					
Cluster:		Experiment with transformations in the plane.					
Type: ___ ___ Knowledge ___ X ___ Reasoning ___ ___ Performance Skill ___ ___ Product							
Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets
Given a geometric figure and a rotation, reflection or translation, draw the transformed figure using, e.g. graph paper, tracing paper or geometry software.		Draw a transformed figure and specify the sequence of transformations that were used to carry the given figure onto the other. From Appendix A: Build on student experience with rigid motions from earlier grades. Point out the basis of rigid motions in geometric concepts, e.g., translations move points a specific distance along a line parallel to a specified line; rotations move objects along a circular arc with a specified center through a specified angle.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 1	
Standard with code:	G.CO.7 Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.
Domain:	Congruence
Cluster:	Understand congruence in terms of rigid motions
Type: _____ Knowledge ___X___ Reasoning _____ Performance Skill _____ Product	

Knowledge Targets		Reasoning Targets				Performance Skills Targets	Product Targets
Identify corresponding angles and sides of two triangles. Identify corresponding pairs of angles and sides of congruent triangles after rigid motions.		Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if corresponding pairs of sides and corresponding pairs of angles are congruent. Use the definition of congruence in terms of rigid motions to show that if the corresponding pairs of sides and corresponding pairs of angles of two triangles are congruent then the two triangles are congruent. Justify congruency of two triangles using transformations. From Appendix A: Rigid motions are at the foundation of the definition of congruence. Students reason from the basic properties of rigid motions (that they preserve distance and angle), which are assumed without proof. Rigid motions and their assumed properties can be used to establish the usual triangle congruence criteria, which can then be used to prove other theorems.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 1	
Standard with code:	G.CO.8 Explain how the criteria for triangle congruence (ASA, SAS, SSS) follow from the definition of congruence in terms of rigid motions.
Domain:	Congruence
Cluster:	Understand congruence in terms of rigid motions
Type: ___ Knowledge ___X___ Reasoning ___ Performance Skill ___ Product	

Knowledge Targets		Reasoning Targets			Performance Skills Targets	Product Targets	
<p>Informally use rigid motions to take angles to angles and segments to segments (from 8th grade).</p> <p>Formally use dynamic geometry software or straightedge and compass to take angles to angles and segments to segments.</p>		<p>Explain how the criteria for triangle congruence (ASA, SAS, SSS) follows from the definition of congruence in terms of rigid motions (i.e. if two angles and the included side of one triangle are transformed by the same rigid motion(s) then the triangle image will be congruent to the original triangle).</p> <p>From Appendix A: Rigid motions are at the foundation of the definition of congruence. Students reason from the basic properties of rigid motions (that they preserve distance and angle), which are assumed without proof. Rigid motions and their assumed properties can be used to establish the usual triangle congruence criteria, which can then be used to prove other theorems.</p>					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 1	
Standard with code:	G.CO.9 Prove theorems about lines and angles. <i>Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.</i>
Domain:	Congruence
Cluster:	Prove Geometric Theorems
Type: _____ Knowledge <u> X </u> Reasoning _____ Performance Skill _____ Product	

Knowledge Targets		Reasoning Targets				Performance Skills Targets	Product Targets
Identify and use properties of; <ul style="list-style-type: none">• Vertical angles• Parallel lines with transversals• All angle relationships• Corresponding angles• Alternate interior angles• Perpendicular bisector• Equidistant from endpoint		Prove vertical angles are congruent. Prove corresponding angles are congruent when two parallel lines are cut by a transversal and converse. Prove alternate interior angles are congruent when two parallel lines are cut by a transversal and converse. Prove points are on a perpendicular bisector of a line segment are exactly equidistant from the segments endpoint. From Appendix A: Encourage multiple ways of writing proofs, such as in narrative paragraphs, using flow diagrams, in two-column format, and using diagrams without words. Students should be encouraged to focus on the validity of the underlying reasoning while exploring a variety of formats for expressing that reasoning.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 1	
Standard with code:	G.CO.10 Prove theorems about triangles. <i>Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.</i>
Domain:	Congruence
Cluster:	Prove Geometric Theorems
Type: _____Knowledge <u> X </u>Reasoning _____Performance Skill _____Product	

Knowledge Targets		Reasoning Targets		Performance Skills Targets	Product Targets		
Identify the hypothesis and conclusion of a theorem.		Design an argument to prove theorems about triangles. Analyze components of the theorem. Prove theorems about triangles. From Appendix A: Encourage multiple ways of writing proofs, such as in narrative paragraphs, using flow diagrams, in two-column format, and using diagrams without words. Students should be encouraged to focus on the validity of the underlying reasoning while exploring a variety of formats for expressing that reasoning. Implementations of G.CO.10 may be extended to include concurrence of perpendicular bisectors and angle bisectors as preparation for G.C.3 in Unit 5.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 1	
Standard with code:	G.CO.11. Prove theorems about parallelograms. <i>Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.</i>
Domain:	Congruence
Cluster:	Prove geometric theorems
Type: _____ Knowledge <u> X </u> Reasoning _____ Performance Skill _____ Product	

Knowledge Targets		Reasoning Targets				Performance Skills Targets	Product Targets
Classify types of quadrilaterals. Explain theorems for parallelograms and relate to figure.		Use the principle that corresponding parts of congruent triangles are congruent to solve problems. Use properties of special quadrilaterals in a proof. From Appendix A: Encourage multiple ways of writing proofs, such as in narrative paragraphs, using flow diagrams, in two-column format, and using diagrams without words. Students should be encouraged to focus on the validity of the underlying reasoning while exploring a variety of formats for expressing that reasoning.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 1	
Standard with code:	G.CO.12 Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). <i>Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.</i>
Domain:	Congruence
Cluster:	Make geometric constructions
Type: _____ Knowledge _____ Reasoning <u> X </u> Performance Skill _____ Product	

Knowledge Targets		Reasoning Targets		Performance Skills Targets		Product Targets	
Explain the construction of geometric figures using a variety of tools and methods.		<p>Apply the definitions, properties and theorems about line segments, rays and angles to support geometric constructions.</p> <p>Apply properties and theorems about parallel and perpendicular lines to support constructions.</p> <p>From Appendix A: Build on prior student experience with simple constructions. Emphasize the ability to formalize and explain how these constructions result in the desired objects. Some of these constructions are closely related to previous standards and can be introduced in conjunction with them.</p>		Perform geometric constructions including: Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line, using a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).			
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 1	
Standard with code:	G.CO.13 Construct an equilateral triangle, a square and a regular hexagon inscribed in a circle.
Domain:	Congruence
Cluster:	Make geometric constructions
Type: Knowledge Reasoning Performance Skill __X__ Product	

Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets
<p>Note: Underpinning performance, reasoning, and knowledge targets, if applicable, are addressed in G.CO.12</p> <p>From Appendix A: Build on prior student experience with simple constructions. Emphasize the ability to formalize and explain how these constructions result in the desired objects. Some of these constructions are closely related to previous standards and can be introduced in conjunction with them.</p>							Construct an equilateral triangle, a square and a regular hexagon inscribed in a circle.
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 2	
Standard with code:	G.SRT.1a Verify experimentally the properties of dilations given by a center and a scale factor. a. A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.
Domain:	Similarity, Right Triangles, and Trigonometry
Cluster:	Understand similarity in terms of similarity transformations
Type: Knowledge <u> X </u> Reasoning Performance Skill Product	

Knowledge Targets		Reasoning Targets		Performance Skills Targets		Product Targets	
Define image, pre-image, scale factor, center, and similar figures as they relate to transformations. Identify a dilation stating its scale factor and center		Verify experimentally that a dilated image is similar to its pre-image by showing congruent corresponding angles and proportional sides. Verify experimentally that a dilation takes a line not passing through the center of the dilation to a parallel line by showing the lines are parallel. Verify experimentally that dilation leaves a line passing through the center of the dilation unchanged by showing that it is the same line.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 2	
Standard with code:	G.SRT.1b Verify experimentally the properties of dilations given by a center and a scale factor. b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.
Domain:	Similarity, Right Triangles, and Trigonometry
Cluster:	Understand similarity in terms of similarity transformations
Type: _____ Knowledge ___X___ Reasoning _____ Performance Skill _____ Product	

Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets
Define image, pre-image, scale factor, center, and similar figures as they relate to transformations. Identify a dilation stating its scale factor and center Explain that the scale factor represents how many times longer or shorter a dilated line segment is than its pre-image.		Verify experimentally that the dilation of a line segment is longer or shorter in the ratio given by the scale factor.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 2	
Standard with code:	G.SRT.2 Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.
Domain:	Similarity, Right Triangles, and Trigonometry
Cluster:	Understand similarity in terms of similarity transformations
Type: _____ Knowledge <u> X </u> Reasoning _____ Performance Skill _____ Product	

Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets
By using similarity transformations, explain that triangles are similar if all pairs of corresponding angles are congruent and all corresponding pairs of sides are proportional.		Given two figures, decide if they are similar by using the definition of similarity in terms of similarity transformations.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 2	
Standard with code:	G.SRT.3 Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.
Domain:	Similarity, Right Triangles, and Trigonometry
Cluster:	Understand similarity in terms of similarity transformations
Type: ___ Knowledge __X Reasoning ___ Performance Skill ___ Product	

Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets
Recall the properties of similarity transformations.		Establish the AA criterion for similarity of triangles by extending the properties of similarity transformations to the general case of any two similar triangles.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 2	
Standard with code:	G.SRT.4 Prove theorems about triangles. <i>Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.</i>
Domain:	Similarity, Right Triangles, and Trigonometry
Cluster:	Prove theorems involving similarity.
Type: _____Knowledge <input checked="" type="checkbox"/>Reasoning _____Performance Skill _____Product	

Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets
Recall postulates, theorems, and definitions to prove theorems about triangles.		Prove theorems involving similarity about triangles. (Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.)					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 2	
Standard with code:	G.SRT.4 Prove theorems about triangles. <i>Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.</i>
Domain:	Similarity, Right Triangles, and Trigonometry
Cluster:	Prove theorems involving similarity.
Type: _____ Knowledge <input checked="" type="checkbox"/> Reasoning _____ Performance Skill _____ Product	

Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets
Recall postulates, theorems, and definitions to prove theorems about triangles.		Prove theorems involving similarity about triangles. (Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.)					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 2	
Standard with code:	G.SRT.5 Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
Domain:	Similarity, Right Triangles, and Trigonometry
Cluster:	Prove theorems involving similarity
Type: _____Knowledge __X__Reasoning _____Performance Skill _____Product	

Knowledge Targets		Reasoning Targets		Performance Skills Targets		Product Targets	
Recall congruence and similarity criteria for triangles.		Use congruency and similarity theorems for triangles to solve problems. Use congruency and similarity theorems for triangles to prove relationships in geometric figures.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 2	
Standard with code:	G.SRT.6 Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.
Domain:	Similarity, Right Triangles, and Trigonometry
Cluster:	Define trigonometric ratios and solve problems involving right triangles
Type: ___ ___ Knowledge ___X___ Reasoning ___ ___ Performance Skill ___ ___ Product	

Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets
Names the sides of right triangles as related to an acute angle. Recognize that if two right triangles have a pair of acute, congruent angles that the triangles are similar.		Compare common ratios for similar right triangles and develop a relationship between the ratio and the acute angle leading to the trigonometry ratios.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 2	
Standard with code:	G.SRT.7 Explain and use the relationship between the sine and cosine of complementary angles.
Domain:	Similarity, Right Triangles, and Trigonometry
Cluster:	Define trigonometric ratios and solve problems involving right triangles
Type: _____ Knowledge <input checked="" type="checkbox"/> Reasoning _____ Performance Skill _____ Product	

Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets
Use the relationship between the sine and cosine of complementary angles.		Explain how the sine and cosine of complementary angles are related to each other.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 2	
Standard with code:	G.SRT.8 Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems. *
Domain:	Similarity, Right Triangles, and Trigonometry
Cluster:	Define trigonometric ratios and solve problems involving right triangles
Type: _____ Knowledge ___X___ Reasoning _____ Performance Skill _____ Product	

Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets
<p>Recognize which methods could be used to solve right triangles in applied problems.</p> <p>Solve for an unknown angle or side of a right triangle using sine, cosine, and tangent.</p>		<p>Apply right triangle trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.</p>					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 2	
Standard with code:	G.MG.1 Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*(*Modeling Standard)
Domain:	Modeling with Geometry
Cluster:	Apply geometric concepts in modeling situations
Type: _____ Knowledge __X__ Reasoning _____ Performance Skill _____ Product	

Knowledge Targets		Reasoning Targets		Performance Skills Targets		Product Targets	
Use measures and properties of geometric shapes to describe real world objects.		<p>Given a real world object, classify the object as a known geometric shape – use this to solve problems in context.</p> <p>From Appendix A: Focus on situations well modeled by trigonometric ratios for acute angles.</p>					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 2	
Standard with code:	G.MG.2 Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).* (*Modeling Standard)
Domain:	Modeling with Geometry
Cluster:	Apply geometric concepts in modeling situations
Type: _____ Knowledge ___X___ Reasoning _____ Performance Skill _____ Product	

Knowledge Targets		Reasoning Targets		Performance Skills Targets		Product Targets	
Define density.		Apply concepts of density based on area and volume to model real-life situations (e.g., persons per square mile, BTUs per cubic foot).					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 2							
Standard with code:		G.MG.3 Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).>(*Modeling Standard)					
Domain:		Modeling with Geometry					
Cluster:		Apply geometric concepts in modeling situations					
Type: _____Knowledge ___X___Reasoning _____Performance Skill _____Product							
Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets
Describe a typographical grid system.		Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios). From Appendix A: Focus on situations well modeled by trigonometric ratios for acute angles.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 2	
Standard with code:	G.SRT.9 (+) Derive the formula $A = 1/2 ab \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.
Domain:	Similarity, right triangles, and trigonometry
Cluster:	Apply trigonometry to general triangles
Type: _____ Knowledge ___X___ Reasoning _____ Performance Skill _____ Product	

Knowledge Targets		Reasoning Targets			Performance Skills Targets	Product Targets	
Recall right triangle trigonometry to solve mathematical problems.		Derive the formula $A = 1/2 ab \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 2							
Standard with code:		G.SRT.10 (+) Prove the Laws of Sines and Cosines and use them to solve problems.					
Domain:		Similarity, Right Triangles, and Trigonometry					
Cluster:		Apply trigonometry to general triangles					
Type: Knowledge <input checked="" type="checkbox"/> Reasoning Performance Skill Product							
Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets
Use the Laws of Sines and Cosines this to find missing angles or side length measurements.		Prove the Law of Sines Prove the Law of Cosines Recognize when the Law of Sines or Law of Cosines can be applied to a problem and solve problems in context using them. From Appendix A: With respect to the general case of Laws of Sines and Cosines, the definition of sine and cosine must be extended to obtuse angles.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 2	
Standard with code:	G.SRT.11 (+) Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).
Domain:	Similarity, Right Triangles, and Trigonometry
Cluster:	Apply trigonometry to general triangles
Type: _____ Knowledge ___X___ Reasoning _____ Performance Skill _____ Product	

Knowledge Targets			Reasoning Targets			Performance Skills Targets	Product Targets
Determine from given measurements in right and non-right triangles whether it is appropriate to use the Law of Sines or Cosines.			Apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces). From Appendix A: With respect to the general case of the Laws of Sines and Cosines, the definition of sine and cosine must be extended to obtuse angles.				
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/Course: Geometry Unit 3							
Standard with Code:		G.GMD.3 Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.*(*Modeling Standard)					
Domain:		Geometric Measurement and Dimension					
Cluster:		Explain volume formulas and use them to solve problems.					
Type: ____ Knowledge <u> X </u> Reasoning ____ Performance Skill ____ Product							
Knowledge Targets		Reasoning Targets		Performance Skill Targets		Product Targets	
Utilize the appropriate formula for volume depending on the figure.		Use volume formulas for cylinders, pyramids, cones, and spheres to solve contextual problems. From Appendix A: Informal arguments for area and volume formulas can make use of the way in which area and volume scale under similarity transformations: when one figure in the plane results from another by applying a similarity transformation with scale factor K, its area is K ² times the area of the first. Similarly, volumes of solid figures scale by K ³ under a similarity transformations with scale factor K.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/Course (high School): Geometry Unit 3							
Standard with Code:		G.GMD.4 Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.					
Domain:		Geometric Measurement & Dimension					
Cluster:		Visualize relationships between two-dimensional and three-dimensional objects					
Type: __Knowledge __X Reasoning __ __Performance Skill __Product							
Knowledge Targets		Reasoning Targets		Performance Skill Targets		Product Targets	
Use strategies to help visualize relationships between two-dimensional and three dimensional objects		Relate the shapes of two-dimensional cross-sections to their three-dimensional objects Discover three-dimensional objects generated by rotations of two-dimensional objects.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 3	
Standard with code:	G.MG.1 Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*(*Modeling Standard)
Domain:	Modeling with Geometry
Cluster:	Apply geometric concepts in modeling situations
Type:	_____Knowledge ___X___Reasoning _____Performance Skill _____Product

Knowledge Targets		Reasoning Targets		Performance Skills Targets		Product Targets	
Use measures and properties of geometric shapes to describe real world objects		<p>Given a real world object, classify the object as a known geometric shape; use this to solve problems in context.</p> <p>From Appendix A: Focus on situations that require relating two- and three-dimensional objects, determining and using volume, and the trigonometry of general triangles.</p>					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/Course (high School): Geometry Unit 4							
Standard with Code:	G.GPE.4 Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point $(0, 2)$.						
Domain:	Expressing Geometric Properties With Equations						
Cluster:	Use coordinates to prove simple geometric theorems algebraically.						
Type:	Knowledge	X Reasoning	Performance Skill	Product			
Knowledge Targets		Reasoning Targets		Performance Skill Targets		Product Targets	
<p>Recall previous understandings of coordinate geometry (including, but not limited to: distance, midpoint and slope formula, equation of a line, definitions of parallel and perpendicular lines, etc.)</p> <p>From Appendix A: This unit has a close connection with the next unit. For example, a curriculum might merge G.GPE.1 and the unit 5 treatment of G.GPE.4 with the standards in this unit. Reasoning with triangles in this unit is limited to right triangles;</p>		<p>Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point $(0, 2)$.</p> <p>e.g., derive the equation of a line through 2 points using similar right triangles.</p>					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/Course: Geometry Unit 4							
Standard with Code:	G.GPE.5 Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).						
Domain:	Expressing Geometric Properties with Equations						
Cluster:	Use coordinates to prove simple geometric theorems algebraically						
Type:	<input type="checkbox"/> Knowledge <input checked="" type="checkbox"/> Reasoning <input type="checkbox"/> Performance Skill <input type="checkbox"/> Product						
Knowledge Targets		Reasoning Targets		Performance Skill Targets		Product Targets	
<p>Recognize that slopes of parallel lines are equal.</p> <p>Recognize that slopes of perpendicular lines are opposite reciprocals (i.e, the slopes of perpendicular lines have a product of -1)</p> <p>Find the equation of a line parallel to a given line that passes through a given point.</p> <p>Find the equation of a line perpendicular to a given line that passes through a given point.</p>		<p>Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems.</p> <p>From Appendix A: Relate work on parallel lines in G.GPE.5 to work on A.REI.5 in High School Algebra 1 involving systems of equations having no solution or infinitely many solutions.</p>					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/Course (high School): Geometry Unit 4							
Standard with Code:		G.GPE.6 Find the point on a directed line segment between two given points that partitions the segment in a given ratio.					
Domain:		Expressing Geometric Properties with Equations					
Cluster:		Use coordinates to prove simple geometric theorems algebraically					
Type: __Knowledge __X__Reasoning ____Performance Skill ____Product							
Knowledge Targets		Reasoning Targets		Performance Skill Targets		Product Targets	
Recall the definition of ratio. Recall previous understandings of coordinate geometry.		Given a line segment (including those with positive and negative slopes) and a ratio, find the point on the segment that partitions the segment into the given ratio.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/Course: Geometry Unit 4			
Standard with Code:	G.GPE.7 Use coordinates to compute perimeters of polygons and area of triangles and rectangles, e.g., using the distance formula.>(*Modeling Standard)		
Domain:	Expressing Geometric Properties with Equations		
Cluster:	Use coordinates to prove simple geometric theorems algebraically		
Type: ____Knowledge __X__Reasoning ____Performance Skill ____Product			
Knowledge Targets	Reasoning Targets	Performance Targets	Product Targets
Use the coordinates of the vertices of a polygon to find the necessary dimensions for finding the perimeter (i.e., the distance between vertices).	Formulate a model of figures in contextual problems to compute area and/or perimeter.		
Use the coordinates of the vertices of a triangle to find the necessary dimensions (base, height) for finding the area (i.e., the distance between vertices by counting, distance formula, Pythagorean Theorem, etc.).	From Appendix A: G.GPE.7 provides practice with the distance formula and its connection with the Pythagorean theorem.		
Use the coordinates of the vertices of a rectangle to find the necessary dimensions (base, height) for finding the area (i.e., the distance between vertices by counting, distance formula).			

Grade Level/Course (high School): Geometry Unit 4							
Standard with Code:		G.GPE.2 Derive the equation of a parabola given a focus and directrix.					
Domain:		Expressing Geometric Properties with Equations					
Cluster:		Translate between the geometric description and the equation for a conic section.					
Type: __Knowledge __X_Reasoning ____Performance Skill ____Product							
Knowledge Targets		Reasoning Targets		Performance Skill Targets		Product Targets	
Define a parabola including the relationship of the focus and the equation of the directrix to the parabolic shape. From Appendix A: The directrix should be parallel to a coordinate axis.		Derive the equation of parabola given the focus and directrix.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): Geometry Unit 5							
Standard with code:		G.C.1 Prove that all circles are similar.					
Domain:		Circles					
Cluster:		Understand and apply theorems about circles					
Type: Knowledge X Reasoning Performance Skill Product							
Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets
Recognize when figures are similar. (Two figures are similar if one is the image of the other under a transformation from the plane into itself that multiplies all distances by the same positive scale factor, k . That is to say, one figure is a dilation of the other.)		Compare the ratio of the circumference of a circle to the diameter of the circle. Discuss, develop and justify this ratio for several circles. Determine that this ratio is constant for all circles.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): Geometry Unit 5	
Standard with code:	G.C.2 Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.
Domain:	Circles
Cluster:	Understand and apply theorems about circles
Type: ____ Knowledge <input checked="" type="checkbox"/> Reasoning ____ Performance Skill ____ Product	

Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets	
Identify inscribed angles, radii, chords, central angles, circumscribed angles, diameter, tangent.		Examine the relationship between central, inscribed and circumscribed angles by applying theorems about their measures.						
Recognize that inscribed angles on a diameter are right angles.								
Recognize that radius of a circle is perpendicular to the radius at the point of tangency.								
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.	

Grade Level/ Course (HS): Geometry Unit 5	
Standard with code:	G.C.3 Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.
Domain:	Circles
Cluster:	Understand and apply theorems about circles.
Type: ___ Knowledge ___ Reasoning ___X___ Performance Skill ___ Product	

Knowledge Targets		Reasoning Targets		Performance Skills Targets		Product Targets	
Define inscribed and circumscribed circles of a triangle. Recall midpoint and bisector definitions. Define a point of concurrency.		Prove properties of angles for a quadrilateral inscribed in a circle.		Construct inscribed circles of a triangle Construct circumscribed circles of a triangle.			
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): Geometry Unit 5	
Standard with code:	G.C. 4 (+) Construct a tangent line from a point outside a given circle to the circle.
Domain:	Circles
Cluster:	Understand and Apply Theorems about circles
Type: ___ Knowledge ___ Reasoning ___ Performance Skill __X__ Product	

Knowledge Targets		Reasoning Targets		Performance Skills Targets		Product Targets	
Recall vocabulary: Tangent Radius Perpendicular bisector Midpoint Identify the center of the circle		Synthesize theorems that apply to circles and tangents, such as: Tangents drawn from a common external point are congruent. A radius is perpendicular to a tangent at the point of tangency.		Construct the perpendicular bisector of the line segment between the center C to the outside point P. Construct arcs on circle C from the midpoint Q, having length of CQ. Construct the tangent line.			
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): Geometry Unit 5	
Standard with code:	G.C. 5 Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.
Domain:	Circles
Cluster:	Find arc lengths and areas of sectors of circles.
Type: ____ Knowledge ____X__ Reasoning ____ Performance Skill ____ Product	

Knowledge Targets		Reasoning Targets				Performance Skills Targets		Product Targets
Recall how to find the area and circumference of a circle. Explain that $1^\circ = \pi/180$ radians Recall from G.C.1, that all circles are similar. Determine the constant of proportionality (scale factor).		Justify the radii of any two circles (r_1 and r_2) and the arc lengths (s_1 and s_2) determined by congruent central angles are proportional, such that $r_1/s_1 = r_2/s_2$ Verify that the constant of a proportion is the same as the radian measure, θ , of the given central angle. Conclude $s = r \theta$ From Appendix A: Emphasize the similarity of all circles. Note that by similarity of sectors with the same central angle, arc lengths are proportional to the radius. Use this as a basis for introducing radian as a unit of measure. It is not intended that it be applied to the development of circular trigonometry in this course.						
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.	

Grade Level/ Course (HS): Geometry Unit 5							
Standard with code:		G.GPE.1 Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.					
Domain:		Expressing Geometric Properties with Equations					
Cluster:		Translate between the geometric description and the equation for a conic section					
Type: Knowledge X Reasoning Performance Skill Product							
Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets
Define a circle. Use Pythagorean Theorem. Complete the square of a quadratic equation.		Derive equation of a circle using the Pythagorean Theorem – given coordinates of the center and length of the radius. Determine the center and radius by completing the square. From Appendix A: Emphasize the similarity of all circles. Note that by similarity of sectors with the same central angle, arc lengths are proportional to the radius. Use this as a basis for introducing radian as a unit of measure. It is not intended that it be applied to the development of circular trigonometry in this course.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): Geometry Unit 5	
Standard with code:	G.GPE.4 Use coordinates to prove simple geometric theorems algebraically. <i>For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point (1, $\sqrt{3}$) lies on the circle centered at the origin and containing the point (0,2).</i>
Domain:	Expressing Geometric Properties with Equations
Cluster:	Use coordinates to prove simple geometric theorems algebraically
Type: _____Knowledge _____x_____Reasoning _____Performance Skill _____Product	

Knowledge Targets		Reasoning Targets		Performance Skills Targets		Product Targets	
Recall previous understandings of coordinate geometry (including, but not limited to: distance, midpoint and slope formula, equation of a line, definitions of parallel and perpendicular lines, etc.)		Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point (1, $\sqrt{3}$) lies on the circle centered at the origin and containing the point (0, 2). From Appendix A: Include simple proofs involving circles.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 5	
Standard with code:	G.MG.1 Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*(*Modeling Standard)
Domain:	Modeling with Geometry
Cluster:	Apply geometric concepts in modeling situations
Type: Knowledge <input checked="" type="checkbox"/> Reasoning Performance Skill Product	

Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets
Use measures and properties of geometric shapes to describe real world objects		<p>Given a real world object, classify the object as a known geometric shape - use this to solve problems in context.</p> <p>From Appendix A: Focus on situations in which the analysis of circles is required.</p>					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 6	
Standard with code:	S.CP.1 Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events (“or”, “and”, “not”). Statistics and Probability is a Modeling Conceptual Category.
Domain:	Conditional Probability and the Rules of Probability
Cluster:	Understand independence and conditional probability and use them to interpret data.
Type: _____ Knowledge ___X___ Reasoning _____ Performance Skill _____ Product	

Knowledge Targets	Reasoning Targets	Performance Skills Targets	Product Targets
Define unions, intersections and complements of events.	Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events (“or”, “and”, “not”).		

Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.
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Grade Level/ Course: Geometry Unit 6	
Standard with code:	S.CP 2 Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent. Statistics and Probability is a Modeling Conceptual Category.
Domain:	Conditional Probability and the Rules of Probability
Cluster:	Understand independence and conditional probability and use them to interpret data.
Type: X Knowledge Reasoning Performance Skill Product	

Knowledge Targets		Reasoning Targets		Performance Skills Targets		Product Targets	
<p>Categorize events as independent or not using the characterization that two events A and B are independent when the probability of A and B occurring together is the product of their probabilities.</p> <p>From Appendix A: Build on work from 2-way tables from Algebra 1 Unit 3 (S.ID.5) to develop understanding of conditional probability and independence.</p>							
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 6	
Standard with code:	S.CP 3 Understand the conditional probability of A given B as $P(A \text{ and } B)/P(B)$, and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B. Statistics and Probability is a Modeling Conceptual Category.
Domain:	Conditional Probability and the Rules of Probability
Cluster:	Understand independence and conditional probability and use them to interpret data
Type: <input checked="" type="checkbox"/> Knowledge <input type="checkbox"/> Reasoning <input type="checkbox"/> Performance Skill <input type="checkbox"/> Product	

Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets
<p>Know the conditional probability of A given B as $P(A \text{ and } B)/P(B)$</p> <p>Interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.</p>							
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 6	
Standard with code:	S.CP. 4 Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. <i>For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in 10th grade. Do the same for other subjects and compare the results.</i> Statistics and Probability is a Modeling Conceptual Category.
Domain:	Conditional Probability and the Rules of Probability
Cluster:	Understand independence and conditional probability and use them to interpret data
Type: <input type="checkbox"/> Knowledge <input checked="" type="checkbox"/> Reasoning <input type="checkbox"/> Performance Skill <input type="checkbox"/> Product	

Knowledge Targets			Reasoning Targets			Performance Skills Targets	Product Targets
Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. From Appendix A: Build on work with two-way tables from Algebra 1 Unit 3 (S.ID.5) to develop understanding of conditional probability and independence.			Interpret two-way frequency tables of data when two categories are associated with each object being classified. (For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in 10 th grade. Do the same for other subjects and compare the results.)				
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 6	
Standard with code:	S.CP.5 Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. <i>For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.</i> Statistics and Probability is a Modeling Conceptual Category.
Domain:	Conditional Probability and Rules of Probability
Cluster:	Understand independence and conditional probability and use them to interpret data
Type: _____Knowledge ___X___Reasoning _____Performance Skill _____Product	

Knowledge Targets		Reasoning Targets			Performance Skill Targets		Product Targets
Recognize the concepts of conditional probability and independence in everyday language and everyday situations.		Explain the concepts of conditional probability and independence in everyday language and everyday situations. (For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.)					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 6	
Standard with code:	S.CP.6 Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A and interpret the answer in terms of the model. Statistics and Probability is a Modeling Conceptual Category.
Domain:	Conditional Probability and Rules of Probability
Cluster:	Use rules of probability to compute probabilities of compound events in a uniform probability model.
Type: _____ Knowledge <u> X </u> Reasoning _____ Performance Skill _____ Product	

Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets
Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A.		Interpret the answer in terms of the model.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course : Geometry Unit 6	
Standard with code:	S.CP.7 Apply the Additional Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$ and interpret the answer in terms of the model. Statistics and Probability is a Modeling Conceptual Category.
Domain:	Conditional Probability and Rules of Probability
Cluster:	Use rules of probability to compute probabilities of compound events in a uniform probability model.
Type: _____ Knowledge __X__ Reasoning _____ Performance Skill _____ Product	

Knowledge Targets		Reasoning Targets		Performance Skills Targets		Product Targets	
Use the Additional Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$		Interpret the answer in terms of the model.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/Course : Geometry Unit 6	
Standard with code:	S.CP.8 (+) Apply the general Multiplication Rule in a uniform probability model, $P(A \text{ and } B) = P(A)P(B A) = P(B)P(A B)$, and interpret the answer in terms of the model. Statistics and Probability is a Modeling Conceptual Category.
Domain:	Conditional Probability and Rules of Probability
Cluster:	Use the rules of probability to compute probabilities of compound events in a uniform probability model.
Type: _____ Knowledge ___X___ Reasoning _____ Performance Skill _____ Product	

Knowledge Targets		Reasoning Targets		Performance Skills Targets		Product Targets	
Use the multiplication rule with correct notation.		Apply the general Multiplication Rule in a uniform probability model $P(A \text{ and } B) = P(A)P(B A) = P(B)P(A B)$. Interpret the answer in terms of the model.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course: Geometry Unit 6							
Standard with code:		S.CP.9 (+) Use permutations and combinations to compute probabilities of compound events and solve problems. Statistics and Probability is a Modeling Conceptual Category.					
Domain:		Conditional Probability and Rules of Probability					
Cluster:		Use rules of probability to compute probabilities of compound events in a uniform probability model.					
Type: ___Knowledge ___X___Reasoning ___Performance Skill ___Product							
Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets
Identify situations that are permutations and those that are combinations.		Use permutations and combinations to compute probabilities of compound events and solve problems.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): Geometry Unit 6	
Standard with code:	S.MD.6 (+) Use probabilities to make fair decisions (e.g. drawing by lots, using a random number generator.) <i>This unit sets the stage for work in Algebra II, where the ideas of statistical inference are introduced. Evaluating the risks associated with conclusions drawn from sample data (i.e. incomplete information) requires an understanding of probability concepts. Statistics and Probability is a Modeling Conceptual Category.</i>
Domain:	Using Probability to Make Decisions
Cluster:	Use probability to evaluate outcomes of decisions
Type: ___Knowledge ___X___Reasoning ___Performance Skill ___Product	

Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets
Compute Theoretical and Experimental Probabilities.		Use probabilities to make fair decisions (e.g. drawing by lots, using a random number generator.) From Appendix A: This unit sets the stage for work in Algebra II, where the ideas of statistical inference are introduced. Evaluating the risks associated with conclusions drawn from sample data (i.e. incomplete information) requires an understanding of probability concepts.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.

Grade Level/ Course (HS): Geometry Unit 6							
Standard with code:		S.MD.7 (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game.) Statistics and Probability is a Modeling Conceptual Category.					
Domain:		Using Probability to Make Decisions					
Cluster:		Use probability to evaluate outcomes of decisions					
Type: ___Knowledge __X___Reasoning ___Performance Skill ___Product							
Knowledge Targets		Reasoning Targets			Performance Skills Targets		Product Targets
Recall prior understandings of probability.		Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game.) From Appendix A: This unit sets the stage for work in Algebra II, where the ideas of statistical inference are introduced. Evaluating the risks associated with conclusions drawn from sample data (i.e. incomplete information) requires an understanding of probability concepts.					
Make sense of problems and persevere in solving them.	Reason abstractly and quantitatively.	Construct viable arguments and critique the reasoning of others.	Model with mathematics.	Use appropriate tools strategically.	Attend to precision.	Look for and make use of structure.	Look for and express regularity in repeated reasoning.